Computer Aided Debriefing System (CADS)

CAPT J. W. Buckner

Commander, Sea Control Wing, U.S. Pacific Fleet

CRM Beta Test Project

Naval Aviation Flag Human Factors Board

ICW

Embry Riddle Aeronautical University

Third GAIN World Conference, November 3-5, 1998

Overview of CADS

- **COTS components capture and replay simulator event by:**
  - Recording video/audio/instruments
  - Storing data in central processing unit
  - Replaying event immediately at debriefing station

Overview of CADS

- **Customized briefing station interface digitally captures:**
  - Selected flight/navigation instruments
  - Engine instruments
  - Control position
  - Tactical displays
  - 3-D aircraft flight animation with selectable viewpoint

CADS Methodology

- **Portable user-designed and modified device allows placement of marks on DAT to improve targeting and recall of:**
  - Connections of events (maneuvers, procedures, CRM)
  - Specific topics for debrief (e.g., EP's, CRM)
  - Decomposition of complex events

Computer Aided Debriefing System

- **Sample Naval Aviators' comments:**

" Critical link in establishment and reinforcement of flight/CRM skills." - Commanding Officer, VS-38

" CADS served as a "flight data recorder" to check procedures- especially useful in microburst event."
- Training Director, VS-41

CADS Products/Methodology

- **Aviation Activity Analysis (A3) software allows improved data utility for crew debriefs and analysis:**
  - Records inflight marking of observable behaviors
  - Inflight tracking of flight data

Current CADS Applications

- **Data supports systemic performance analysis of aircrew, curriculum, and instruction:**
  - LOS event activity decomposition
  - Linear and non-linear debriefs
  - Crew self-critique
  - Trend analysis

Applicability to other Areas

- **Improve data and usefulness of data collected:**
  - Curriculum Development (Task Analysis, targeting of problem areas)
  - Instructor Training (Instructional technique and focus, inter-rater reliability)
  - Uses performance criteria for automated scoring (exceedance flagging)
  - Applied Research
  - Training Program Validation

Computer Aided Debriefing System

- **Next steps**:
  - Identify what types of data are most meaningful to aircrew/training managers
  - Improve standardization of instructor observation/evaluation of aircrew training
  - Code and analyze qualitative and quantitative data to validate curriculum and training strategies to enhance safety and mission performance at VS-41/HSL-41

Computer Aided Debriefing System

Next steps:

- Aircraft (C-9) suitability test with initial data collection at VR-57
- Centralize de-identified files for sharing information and longitudinal studies

Computer Aided Debriefing System

Conclusions:

- **Powerful source of immediate technical and CRM performance feedback to aircrews**

- **CADS-like technology and long term data analysis are the catalysts of process improvements required to make the dynamic changes required to reduce aircraft incidents/accidents**